

PROVIDENCE CITY
Executive Staff Review
Meeting Date: 03/22/2016

Request: Approval of the preliminary plat for Little Baldy Place Subdivision

Item Type: Preliminary Plat	Applicant: Stan Checketts	Agent: Danny Macfarlane
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Prepared by: S Bankhead	General Plan: SFT (Sheet 5-C 2000 Master Plan	Zone: SFL
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Parcel ID #: 02-101-0001 Address: generally 80 North Sherwood Drive	Acres: 69.01 (+/-)	Number of Properties: 1 Proposed Lots: 38
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Staff Report Summary of Key Issues:

1. The minimum lot size in SFL is 20,500 sq. ft.
2. Providence City Code (PCC) 10-8-2 says: in areas that contain sensitive areas and hazard zoned (see Chapter 5 of this Title) Thirty percent (30%) of the lots can be less than the minimum lot size and/or reduced frontage width, but no lot can be less than 12,000 sq. ft. in the subdivision and the frontage requirement at the setback line must be the minimum for the zone.
3. The minimum lot width at the setback line in a SFL zone is 100 ft. (see PCC 10-8-1: Area Regulations)
4. The Developer has provided results from a water model for the area and the pressures are adequate for fire flow requirements.
5. The Developer has agreed to dedicate the property for a water reservoir.

FINDINGS OF FACT:

The following were used to review this plat:

1. PCC 10-5 Overlay Zones, including but not limited to:
 - a. PCC 10-5-2: Sensitive Areas
 - b. PCC 10-5-4: Hazard Slope Zone (HS)
 - c. PCC 10-5-6: Hazard Earthquake Primary Fault Zone (HE)
2. PCC 10-8 Area Regulations
3. PCC 11-3-2: Preliminary Plat
4. PCC 11-4 Design Standards

CONCLUSIONS OF LAW:

1. The preliminary plat meets the above requirements with the following conditions:

CONDITIONS:

1. The farthest point of every structure will need to be within 600 feet of a fire hydrant. For the east lots, fire truck access is required for any homes where the furthest corner of any structure (including accessory buildings) is more than 150 feet from where the fire truck is parked.
2. Table 2 Fire Flow and Allowable Structure Area from the Water Model and Fire Flow Summary must be recorded with the final plat.
3. The fault line needs to be verified.
4. Minimum lot widths need to be verified.
5. Show the buildable envelope on each lot.
6. Lot numbers on all pages need to be consistent.
7. Developer continues to meet all relevant federal, state, and local rules, laws, ordinances, etc.

RECOMMENDATION:

Executive Staff recommends the Planning Commission approve the preliminary plat for Little Baldy Place Subdivision based on the findings of fact, conclusions of law, and conditions listed above.

SCALE: 1"=80'



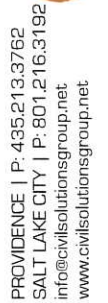
1. INSTALL ASPHALT; 36" WIDTH; SEE CROSS SECTION DETAIL SHEET C-100
2. INSTALL STANDARD DUTY CONCRETE CROSS SECTION FOR COLLECTOR STREETS. SEE CROSS SECTION DETAIL SHEET C-100
3. INSTALL 3" WIDE VALVE GUTTER AREAS WITH SLOPES EXCEED 30%; LOTS 36, 38, 39, AND 40 WILL REQUIRE ADDITIONAL GRADING TO GET SLOPES LESS THAN 30%.
4. EXISTING IRRIGATION PIPE TO REMAIN
5. NOT USED
6. PROPOSED SEWER, WATER, STORM DRAIN, POWER, COMMUNICATION, AND GAS LINES TO THE INTO EXISTING INFRASTRUCTURE
7. EXISTING DRAINAGE TO BE REMOVED WITHIN PROPOSED ROADWAY
8. INSTALL STORM WATER DETENTION BASIN
9. 2' X 3' STORM WATER CATCH BASIN
10. INSTALL TEMPORARY DETENTION BASIN WITH TEMPORARY STORM WATER EASEMENT
11. SECTION OF EXISTING ACCESS EASEMENT WILL BE RE-ASSIGNED
12. EXISTING ACCESS EASEMENT
13. PROPOSED PROPERTY ACCESS AND TRAILS TO BE MAINTAINED AND OWNED BY PROVIDENCE CITY
14. PROPOSED 50' WIDE COMBINED PROPERTY ACCESS AND PUBLIC BONNEVILLE SHORELINE TRAIL EASEMENT
15. PROPOSED BONNEVILLE SHORELINE TRAIL EASEMENT
16. EXISTING BONNEVILLE SHORELINE TRAIL
17. PROPOSED PHASE 2 LIGHT RAIL
18. PROPOSED LIGHT POLE (TYP)
19. INSTALL PRESSURE REGULATING VALVE (PRV), UPSTREAM PRESSURE APPROXIMATELY 140 PSI. DOWNSTREAM PRESSURE APPROXIMATELY 60 PSI.

1. POWER AND COMMUNICATION LINES ARE ASSUMED TO BE CONTAINED WITHIN THE SAME TRENCH.
2. STORM WATER WILL COLLECT IN GUTTERS ON THE SIDE OF EACH ROAD, BE COLLECTED IN STORM WATER INLET GRATE, AND BE CHANNLED TO THE NEAREST COLLECTION POINT, AND THEN DRAINED AT A CONTROLLED RATE INTO THE CITY STORM WATER SYSTEM.
3. ADDITIONAL ENGINEERING AND SITE GRADING MAY BE REQUIRED TO BUILD ON SLOPES GREATER THAN 20%. ALSO A CONDITIONAL USE PERMIT MAY BE REQUIRED.
4. BY STAMPING THIS DOCUMENT THE ENGINEER VERIFES THAT ALL LOTS WILL HAVE AN ADEQUATE BUILDABLE ENVELOPE WITH RESPECT TO HAZARDOUS SLOPE BUILDING, WATER ZONING, SETBACKS, ETC ON THE CONSTRUCTION DOCUMENTS AND FINAL PLAN.
5. ALL EXISTING POWER POLES TO REMAIN
6. THE FAULT LINE IS SHOWN BASED UPON THE USGS ECOLOGICAL STUDY MAP.
7. THE REMAINDER PARCELS TO BE FENCED AND GRAZED.
8. LOTS 29, 30 AND 31 CANNOT HAVE ACCESS FROM 200 NORTH STREET.
9. CERTAIN AREAS ON THIS PLAN CANNOT BE LANDSCAPED OR BUILT ON.

	SUBDIVISION BOUNDARY
	RIGHT-OF-WAY / PARCEL LINE
	EX. STORM DRAIN LINE
	PHASE BOUNDARY
	EX. GAS LINE
	EX. WATER LINE
	EX. SEWER LINE
	EX. COMMUNICATION LINE
	EX. POWER
	PROPOSED SEWER LINE (SIZE SHOWN)
	PROPOSED WATER LINE (SIZE SHOWN)
	PROPOSED STORM DRAIN LINE (SIZE SHOWN)
	CONTOUR EXISTING
	NATURAL DRAINAGE
	EXISTING ASPHALT
	PROPOSED ASPHALT
	FAULT LINE
	CONSTRUCTION LIMIT LINE
	EXISTING FENCE
	40 PSI WATER PRESSURE LIMIT
	50 PSI WATER PRESSURE LIMIT
	EXISTING CONCRETE
	PROPOSED CONCRETE
	PUBLIC UTILITY EASEMENT
	BUILDING SETBACK
	BONNEVILLE TRAIL EASEMENT
	STORM DRAIN BASIN
	PROPOSED LIGHT POLE
	PROPOSED FIRE HYDRANT

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LITTLE BALDY PLACE SUBDIVISION
PRELIMINARY PLAT



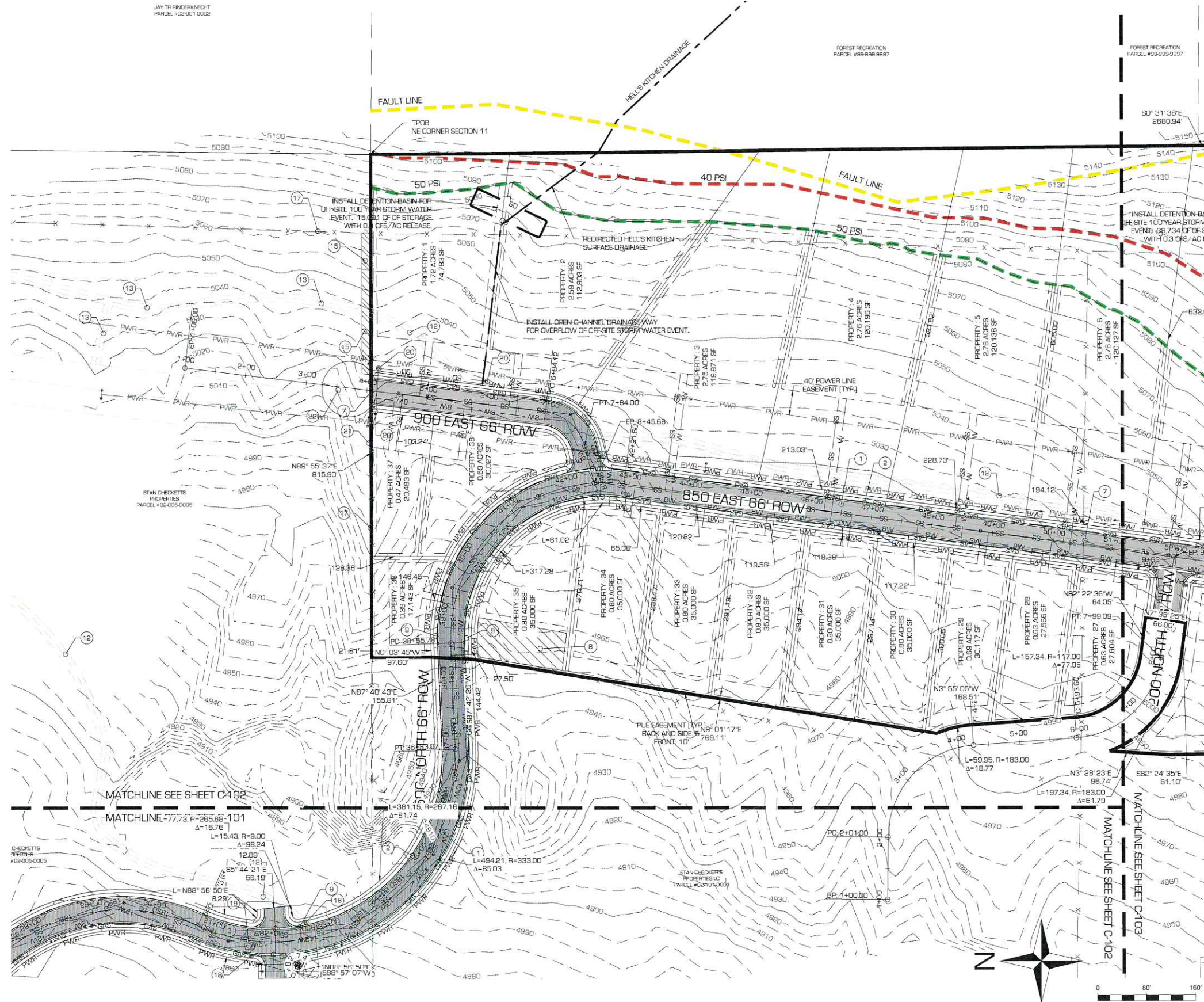
PROJECT #: 742-1501
DRAWN BY: K. ALTHOUSE
PROJECT MANAGER: M. TAYLOR
REVIEWED BY: D. MACFARLANE
ISSUED: 3.18.2016

PRELIMINARY
PLAT

C-101

SCALE: 1"=80'

JAY TR RINDERKNECHT
PARCEL #02-001-0002



— LEADERS IN SUSTAINABLE ENGINEERING AND PLANNING

1. INSTALL ASPHALT, 39" WIDTH; SEE CROSS SECTION DETAIL SHEET C-100
2. INSTALL STANDARD DUTY CONCRETE CROSS SECTION FOR COLLECTOR STREETS; SEE CROSS SECTION DETAIL SHEET C-100
3. INSTALL 3' WIDE VALLEY GUTTER.
4. AREAS WITH SLOPES EXCEEDING 30% (LOTS 36, 39, 39, AND 40) WILL REQUIRE ADDITIONAL GRADING TO GET SLOPES LESS THAN 30%.
5. EXISTING IRRIGATION PIPE TO REMAIN
6. NOT USED
7. PROPOSED SEWER, WATER, STORM DRAIN, POWER, COMMUNICATION, AND GAS LINES TO TIE INTO EXISTING INFRASTRUCTURE
8. EXISTING FENCE TO BE REMOVED WITHIN PROPOSED ROADWAY
9. INSTALL STORM WATER DETENTION BASIN
10. 2' X 3' STORM WATER CATCH BASIN
11. INSTALL TEMPORARY DETENTION BASIN WITH TEMPORARY STORM WATER EASEMENT
12. PORTION OF EXISTING ACCESS EASEMENT WILL BE RE-ASSIGNED
13. EXISTING ACCESS EASEMENT
14. PROPOSED OPEN SPACE AND TRAILS TO BE MAINTAINED AND OWNED BY PROVIDENCE CITY
15. PROPOSED 15' WIDE PUBLIC BONNEVILLE SHORELINE TRAIL DEDICATION
16. NOT USED.
17. EXISTING BONNEVILLE SHORELINE TRAIL
18. PROPOSED PHASE 2 LIMIT LINE
19. PROPOSED LIGHT POLE (TYP.)
20. INSTALL STORM WATER BOXES AND PIPES TO COLLECT OVERFLOW FROM OFF-SITE STORM WATER EVENT.
21. OVERFLOW FROM OFF-SITE STORM WATER EVENT WILL SHEET FLOW ON EXISTING GROUND PAST THIS POINT.
22. INSTALL TEMPORARY TURNAROUND.

1. POWER AND COMMUNICATION LINES ARE ASSUMED TO BE CONTAINED WITHIN THE SAME TRENCH.
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SALT LAKE CITY | P: 801.216.3192
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LITTLE BALDY PLACE SUBDIVISION
PRELIMINARY PLAT

RECEIVED
MAR 21 2016
after 5:00pm
By _____

[illegible]

PROJECT #:	742-1501
DRAWN BY:	K. ALTHOUSE
PROJECT MANAGER:	M. TAYLOR
REVIEWED BY:	D. MACFARLANE
ISSUED:	3.18.2016

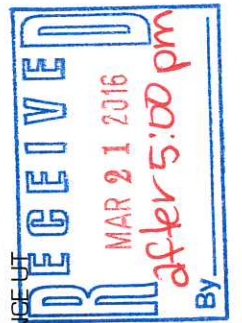
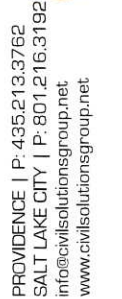
PRELIMINARY
PLAT

C-102

SCALE: 1"=80'




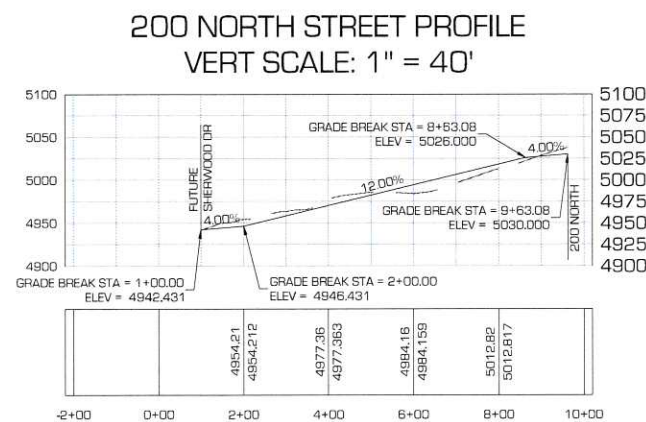
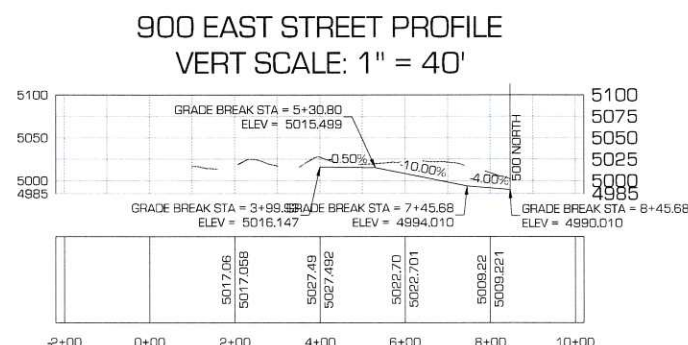
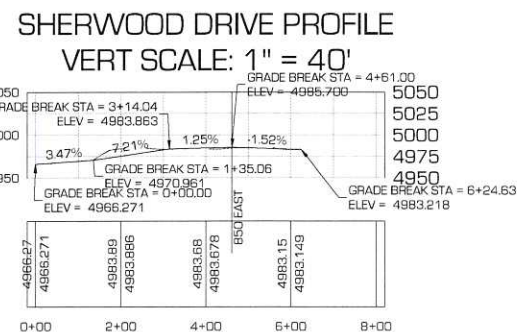
- C-103



SCALE: 1"=200'



1. EXISTING GROUND.
2. PROPOSED CENTERLINE



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ISSUED:	3.18.2016

STREET
PROFILE

C-104

Know what's below.



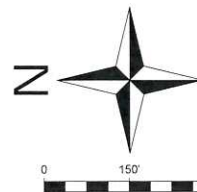
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SCALE: 1"=150'



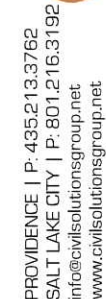
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17. PROPOSED PHASE 2 LIMIT LINE
18. PROPOSED LIGHT POLE (TYPE _____)

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	BUILDING SETBACK
	BONNEVILLE TRAIL EASEMENT
	STORM DRAIN BASIN
	PROPOSED LIGHT POLE
	PROPOSED FIRE HYDRANT
	EXISTING POWER POLE
	SLOPES BETWEEN 20% AND 30%
	SLOPES GREATER THAN 30%

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LITTLE BALDY PLACE SUBDIVISION
PRELIMINARY PLAT
RECEIVED
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PROJECT #:	742:1501
DRAWN BY:	K. ALTHOUSE
PROJECT MANAGER:	M. TAYLOR
REVIEWED BY:	D. MACFARLANE
ISSUED:	3.17.2016

SUBDIVISION
SLOPE ANALYSIS

C-105

March 9, 2016

E.S.R Committee Members
Providence City
Providence, UT 84332

RE: Little Baldy Place Water Model and Fire Flow Summary

Dear ESR Committee,

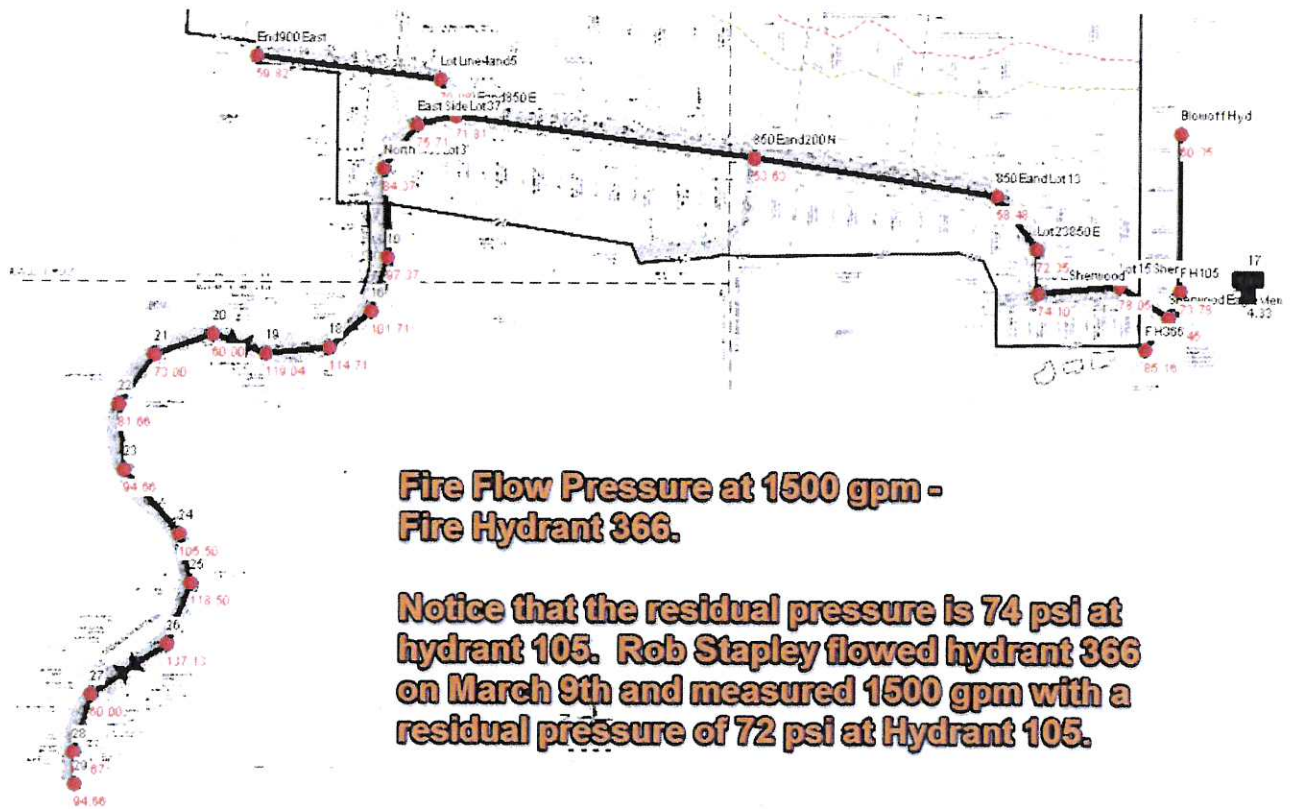
Per the request of the Providence City ESR the water system in the proposed Little Baldy Place has been modeled based upon static and dynamic flow data provided by Providence City Public Works Director Rob Stapley.

The water model software used is EPANET software. The lengths of pipes, type of pipe, size of pipe, elevations of nodes, loss coefficients in the lines, were modeled and calibrated to the two adjacent fire hydrants. The system was also calibrated according to a flow test performed by Rob Stapley on March 9th at hydrant 366, which is west of the Sherwood Drive – Eagle View intersection. The results of that flow test was 1500 gpm at hydrant 366 with a residual pressure measured at hydrant 105 at 72 psi.

A 1500 gpm fire flow demand was added to FH 366 and the system was modeled. Per State of Utah Administrative Code section R309-105-9-(2) (a) states that the minimum pressure in a water system during peak day demand and fire flow is 20 psi. Figure 2 below shows the pressure of all the nodes in the system during peak day demand and fire flow of 1500 gpm at FH 366. All nodes have pressures above 20 psi and the pressure at FH 105 is 74 psi, which is only 2 psi above the field measured residual. This level of accuracy is acceptable.

The peak day demand indoor and outdoor water use per the State of Utah Administrative Code section R309-510 were used and applied to certain nodes in the water model. The area to determine the peak day demand indoor use was set at 60% of the lot area as outlined in the Providence City Code. The summary of these demands is shown in the Figure 1 below.

Figure 1 Fire Flow Pressures at Fire Hydrant 366



Fire Flow Pressure at 1500 gpm - Fire Hydrant 366.

Notice that the residual pressure is 74 psi at hydrant 105. Rob Stapley flowed hydrant 366 on March 9th and measured 1500 gpm with a residual pressure of 72 psi at Hydrant 105.

Table 1 Peak Day Demand

NODE	DESCRIPTION	TOTAL LOT AREA	TOTAL EXECUTIVE LOT AREA	ESTIMATED IRR. AREA	PEAK DAY IRR FLOW (GPM)	PEAK DAY INDOOR USE (GPM)	TOTAL PEAK DAY DEMAND
1	North end of 900 East	1.18	7.73	5.35	21.17	0.56	21.73
2	Intersection of 850 East and 900 East	3.59	5.51	5.46	21.62	0.56	22.18
3	200 North Intersection	6.85	15.01	13.12	51.94	0.56	52.49
4	Sherwood and 850 East Intersection	5.97	12.06	10.82	42.84	0.56	43.39

The water model was also calibrated according to static pressures measured at FH 366, 105, blow off at the top of Eagle View and FH 161. Figure 2 shows the static peak day demand pressures in the system. The static pressure at FH 366 in the model is 111 psi versus 111 psi measured in the field. The static pressure at FH 105 in the model is 98 psi versus 101 psi measured in the field. The static pressure at the blow off hydrant in the model is 84 psi versus 81 psi measured in the field. The static pressure at FH 161 in the model is 95 psi versus 94 psi as measured in the field. All modeled values are within 3 psi or less, which is an acceptable accuracy.

A fire flow analysis was performed at all the nodes along 900 East, 850 East and Sherwood Drive to determine the maximum fire flow combined with peak day demand at a minimum pressure of 20 psi in the system. The process was an iterative process to determine the correct fire flow to keep the system above 20

psi at all nodes. Table 2 below shows the results of the fire flow analysis listing the node location, the fire flow at a minimum pressure of 20 psi or greater and the total square footage of structure allowed based upon building type. One option for home owners is to install fire sprinklers in their homes, which allows for a 50% reduction of the fire flow requirement or to use Type V-A construction, which requires a 1 hour fire rating (see Appendix B of the International Fire Code).

Detailed maps illustrating the pressures at each node during the fire flow analysis can be found in the appendix of this memorandum.

Figure 2 Static Pressures in Water Model

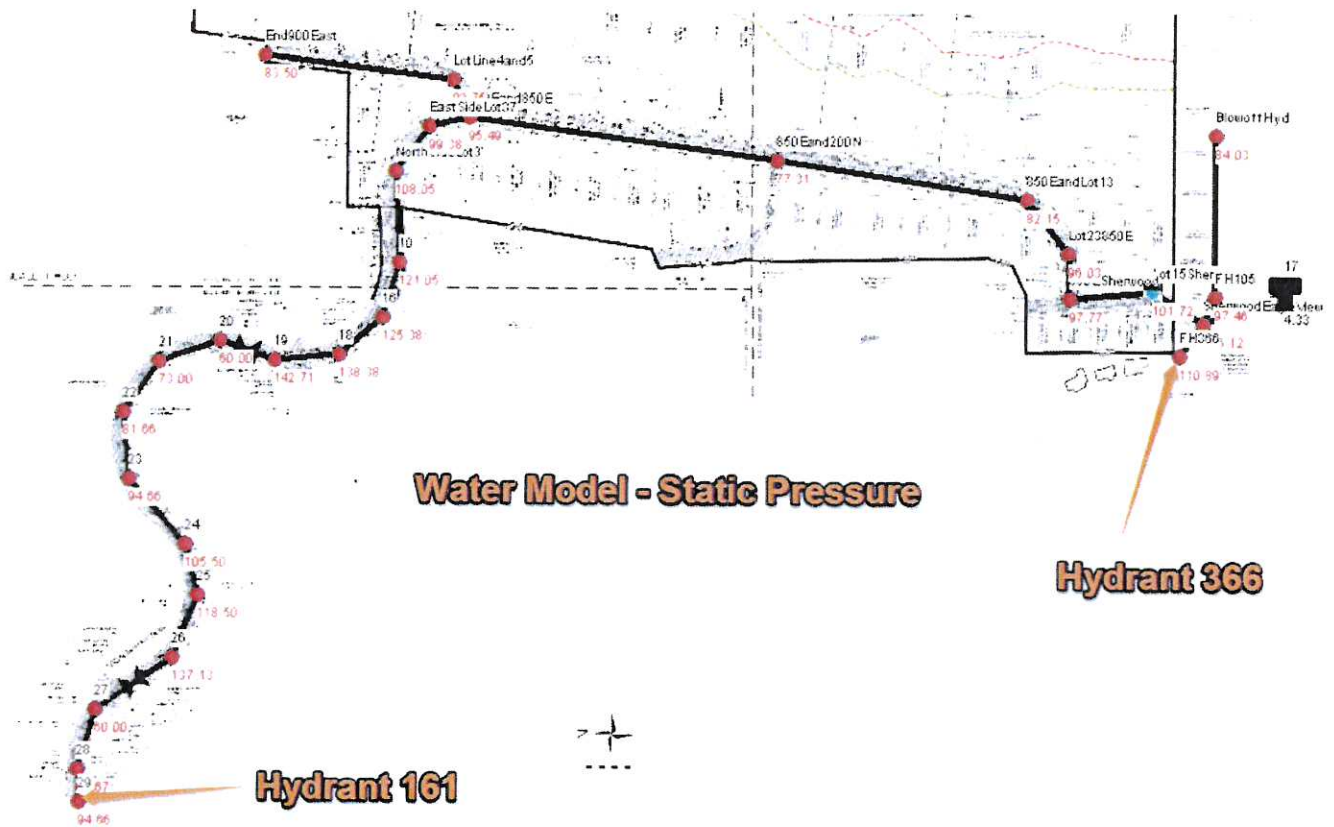


Table 2 Fire Flow and Allowable Structure Area

DESCRIPTION	ALLOWABLE FIRE FLOW @ 20 PSI (GPM)	1 AND 2 DWELLING HOMES FIRE FLOW REQ. UP TO 3600 SF (GPM)	MAX ALLOWABLE STRUCTURE AREA AT FIRE FLOW (TYPE VB CONSTRUCTION) (SF)	MAX ALLOWABLE STRUCTURE AREA WITH FIRE SPRINKLERS (TYPE VB CONSTRUCTION) (SF)	MAX ALLOWABLE STRUCTURE AREA WITH TYPE VA CONSTRUCTION (SF)
End of 900 East	1,310	1,000	3,600	9,400	3,600
850 East 900 East Intersection	1,425	1,000	3,600	11,300	3,600
850 East 200 North Intersection	1,550	1,000	3,600	13,400	8,200
850 East Lot 13	1,850	1,000	4,800	18,000	10,900
Sherwood Drive 850 East Intersection	1,950	1,000	4,800	20,600	10,900
Sherwood Drive Lot 15	2,150	1,000	6,200	26,300	12,900

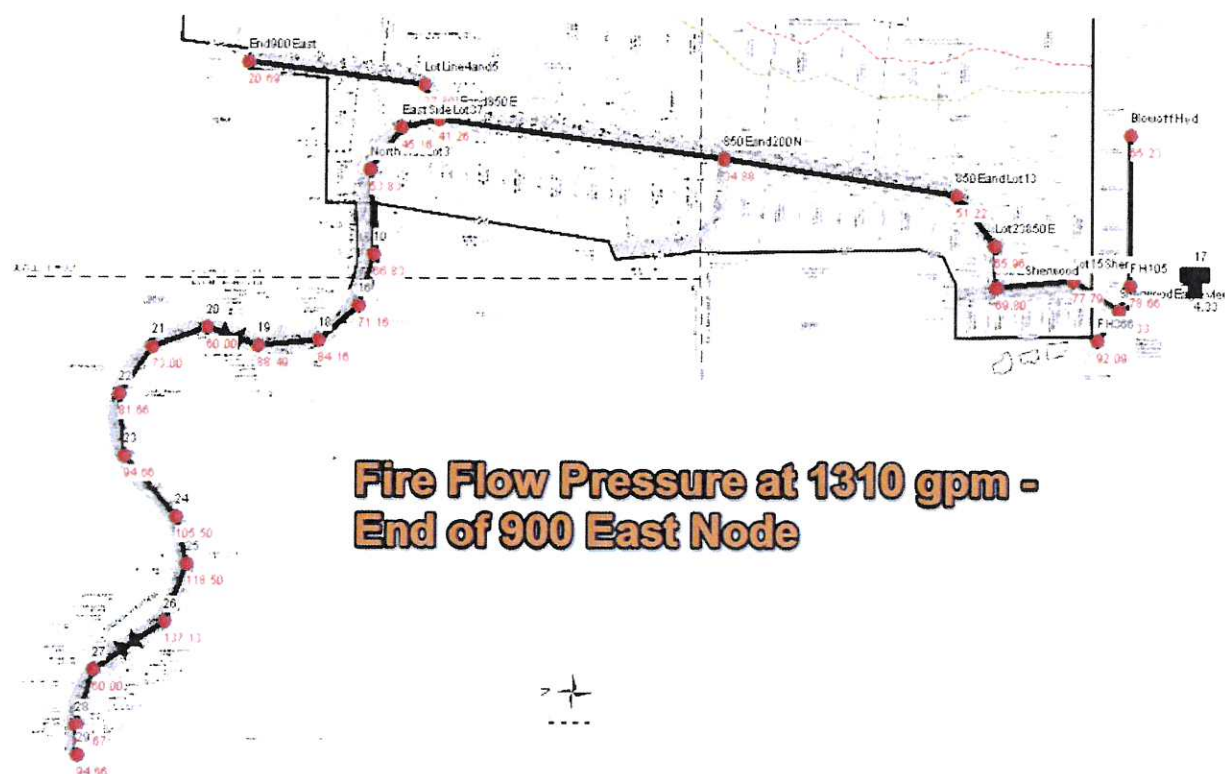
Based upon the data provided, the water model, the State Administrative Code, the International Fire Code and sound engineering judgement the proposed water system appears to have adequate fire flow and pressure as outlined in the document above. This analysis did not model the entire Providence City water system, but simply modeled the system with the available data.

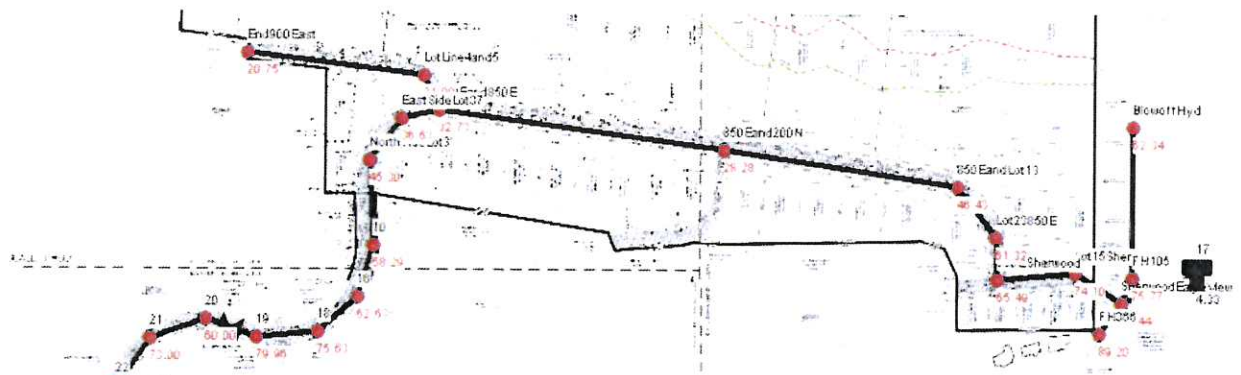
Sincerely,



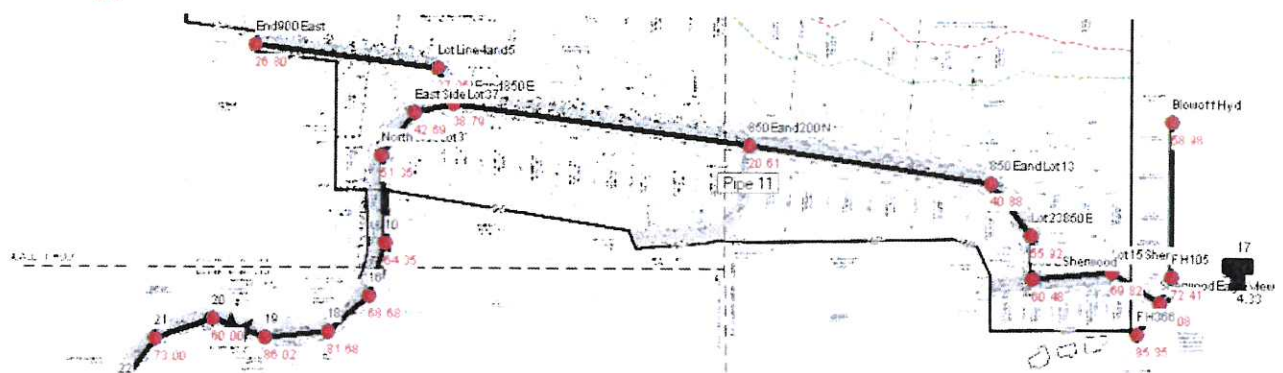
Danny Macfarlane, PE
Civil Solutions Group
danny@civilsolutionsgroup.net
C: 435.760.7488







Fire Flow Pressure at 1425 gpm - 850 East and 900 East Intersection



Fire Flow Pressure at 1550 gpm - 200 North and 850 East Intersection

